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79. (amended) A digitally encoded data stream transmitter comprising:

- 2 shifting means for determining an amount by which scheduled transmission times of data
3 stream portions are to be accelerated and delayed; and
4 transmitting means for transmitting said data stream portions at transmission times accelerated
5 and delayed by [an] the amount determined by said shifting means.

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80. (amended) An apparatus according to claim 79, wherein said data stream portions include a new
2 data stream portion with new data stream data and said new data stream data is received as a plurality
3 of data packets.

82. CANCEL

Please add the following claim:

--83. A method according to claim 51 wherein the step of modifying the portion of the old data stream includes the step of dropping packets that exist in the old data stream.--

REMARKS

Reconsideration and allowance of above referenced application are respectfully requested. Upon entry of this amendment, claims 1, 2, 4-45, 47-66, 68-74, 76-81 and 83 will remain pending in this application.

Applicant thanks the Examiner for his indication that claims 16-19, 36, 32-33, 40-41, 48, 51-53, 57-62 and 78 contain allowable subject matter.

Applicant also thanks the Examiner for his thorough review of the specification and claims. The changes requested by the Examiner in the abstract, most of the claim rejections made pursuant to 35 USC 12, second paragraph, and certain of the changes requested in the claim objections section of the Examiner's rejection have been made.

The few requests for changes in the claims objections section that have not been made are directed to matters of form that do not render the claims indefinite. For instance, whether a claim reads "[T]he method according to" or "[A] method according to", or uses "said" rather than "the" for antecedent basis purposes, does not change the claim at all, since such a claim *is* a new method that *also* recites the method of the base claim in it. Further, the making such unnecessary changes simply

exacerbates the potential for errors in the printing of allowed claims. Thus, it is believed that these claims are definite and readily understandable.

Two claims, 19 and 22, were not amended and were also rejected under 35 USC 112, second paragraph. With respect to claim 19, "a portion of new data stream data" is distinctly different than "a new data stream portion" as recited in base claim 16. Accordingly, this claim is definite and readily understandable, and applicant respectfully requests withdrawal of this rejection. With respect to claim 22, the value "N" is packets and the value "M" is bits. While value ranges can be of significance, they are not necessary to the inventive aspect of this particular claim, and their inclusion would be overly limiting. Accordingly, since claim 22 is definite and readily understandable, applicant respectfully requests withdrawal of this rejection.

Claim rejections have also been made to claims 1-2, 4-15, 20-25, 27-31, 34-39, 42-47, 49-50, 54-56, 63-77, and 79-82 under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,049,569 to Radha et al. in view of U.S. Patent No. 5,864,682 to Porter et al. Applicants have amended certain of the claims, and, as they are presently set forth, respectfully traverses these rejections.

The various claims have aspects that are not taught or suggested by Radha, either alone or in combination, which will be addressed further below. Initially, however, Applicants respectfully assert that one of ordinary skill in the art would not have had a motivation to combine the teachings in these patents, particularly in the manner suggested by the Examiner. Specifically, the Radha patent covers a new encoding technique that requires data operated upon it to be encoded in a specific manner. Without that special encoding, the Radha invention will not be able to splice video in the manner taught therein. Porter, on the other hand, implements that system using a tag file created by parsing the MPEG file to obtain, for each of the frames, information on the state of state machines that are used for decoding. As a result of the different manners in which each of Radha and Porter achieve their distinct objectives, one of ordinary skill in the art would not have been motivated to combine them. Put another way, Radha has no need for the parsing of Porter, and Porter has no need for the encoding technique of Radha.

If, however, the Examiner maintains that one of ordinary skill in the art would have been motivated to combine Radha and Porter, it must be remembered that the combination cannot destroy the essential characteristics of each. *In Re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). And Applicants respectfully assert that the Examiner's pending rejections have not fully considered the implications of this requirement as it pertains to the present inventions. In particular, the Radha

invention only works on streams of data that have been encoded with the specific Radha encoding technique, and the Porter invention only works on streams of data that have been tagged using the Porter tagging technique. In contrast to the present invention, which has the capability of operating upon an existing stream of data that is neither tagged nor specially encoded, these references do not have that capability. Accordingly, the features described more fully hereinafter are significant in allowing the present invention to operate on existing streams of data.

Furthermore, even *assuming arguendo* that there were have been motivation to combine Radha and Porter, that combination would not have resulted in the presently claimed inventions.

Specifically, independent claims 1, 20, 54, 71, 79 introduce as a claim limitation the concept of accelerating a data stream. While the references cited illustrates that the concept of inserting null packets to prevent an overflow condition is known, none of the references cited teach or suggest the concept of accelerating the data stream, such as by deleting null packets later in time. The present invention introduces this concept, as set forth in each of these claims. Claim 1 requires "accelerating a second data stream portion...", claim 20 requires "acceleration of a subsequent part of the new data stream portion,..." claim 54 recites "said means for aligning both delaying and accelerating said new data stream when splicing said old data stream and said new data stream," claim 71 recites "setting a transmission acceleration parameter for said new data stream," and claim 79 recites "transmitting means for transmitting said data stream portions at transmission times accelerated and delayed..."(Emphasis added).

Without this acceleration of a data stream, the number of frames that will be transmitted may well become too low, and buffer underflow may result. This is significant in applications for commercials, where the loss of even a few commercial time frames in every splice can be significant. Since neither Radha or Porter teach or suggest this concept, it is respectfully submitted that independent claims 1, 20, 54, 71 and 79, and the claims dependent thereon, are patentably distinct.

Independent claim 4 is directed to a manner of avoiding overflow which, essentially, is directed to counting bytes. As recited in claim 4, there are the steps of "determining a total amount of old data stream data....adding, to said total amount, an amount of new data stream data to obtain a combined amount of data; [and] testing if said combined amount would overflow said decoder buffer..." (Emphasis Added). In each of the cited references, rather than actually operating on the data and actively testing whether overflow would occur, the cited referenced obtain only an estimate of whether an overflow will occur. It is noteworthy that the present inventor attempted using such an

estimate (the VBV delay field) to determine whether overflow would occur, but found that using such an estimate was inadequate. Accordingly, since neither Radha nor Porter teach or suggest this form of determining whether overflow exists, it is respectfully submitted that independent claim 4, and the claims dependent thereon, are patentably distinct.

Independent claim 22 recites a specific method of determining a delay caused by re-scheduling transmission of a part of new data stream data in a new data stream portion during splicing of data stream portions including an old data stream portion and the new data stream portion according to a formula. That formula is

$$(\text{currently scheduled transmission time for said portion}) + ((n \text{ packets} \times m \text{ bits/packet} \times \text{multiplexer bit rate}) / (\text{data stream bit rate}))$$

Such a specific delay determination based upon the formula recited above is neither taught nor suggested by any of the cited references. Accordingly, it is respectfully submitted that claim 22, and the claim dependent thereon, contains allowable subject matter.

Independent claim 24 relates to a method of splicing a digitally encoded data stream, and as part of that method explicitly recites “modifying a current timing reference of the new data stream to correspond with a splice-out point of the old data stream and a splice-in point of the new data stream...(Emphasis Added).” Such a modification of the current timing reference of the new data stream is neither disclosed nor suggested by either of Radha or Porter. Rather, Porter, as described at column 15, lines 13-15, causes a clock reset, which causes a discontinuity in the splice. Radha encodes in an arbitrary time domain, but when a splice is required, inserts a discontinuity packet. This does not modify any current timing reference.

The modification of the current timing reference effectively eliminates the presence of a discontinuity, which has significant advantages. Most importantly, decoders operate better without such discontinuities. And furthermore, in the commercial setting devices exist which can automatically look for discontinuities, and use these discontinuities to remove commercials or other content that have been purposefully inserted into the programming. Without having discontinuities, these devices will not be able to recognize where the commercial or other content has been specifically inserted, and thus will not be able to remove it. Accordingly, it is respectfully submitted that claim 24 and the claims dependent thereon contain allowable subject matter.

Independent claims 55, 56, 63 and 65, are directed to methods for and apparatus that prepares a digitally encoded data stream for splicing. As explicitly recited independent claims 55 and 56, this

includes the step of and structure for, respectively, closing an initial group of pictures (GOP), claim 63 describes this in terms of "modifying an ordering parameter of said portion such that a receiving decoder will decode said independently decodable frame as a first frame of said portion," and claim 65 requires "deleting all frames with said GOP that precede said I-frame;" and thereafter describes modifying temporal references for at least one remaining frame.

None of the cited references discloses or suggests this concept. It is just not there. The Examiner points to Porter replacing a delayed time stamp in a packet header portion of the prefix data. This, however, has nothing to do with closing an initial group of pictures. Closing an initial group of pictures requires that none of the frames in the initial group of pictures relies on any frames that precede the splice point. As described in the specification, the preferred embodiment drops leading B frames in order to close the initial group of pictures. Since the references fail to teach or suggest this, it is respectfully submitted that claims 55, 56, 63 and 65 and the claims dependent thereon contain allowable subject matter.

Independent claim 67 has been cancelled, and new independent claim 68 includes the limitations from claim 67, as well as recites a method of finding a new data stream real-time transit time that is neither disclosed nor suggested by the cited references. In particular, the Examiner acknowledges that Radha does not recite the use of a decode time stamp DTS of the frame for determining the real-time transmit time and the step of determining the program clock reference PCR. Further, Porter does not disclose nor suggest the determination of a delta-period or a continuous DTS as a sum of the first DTS and an inter-frame delay. Accordingly, claim 68, and claims dependent thereon, contain allowable subject matter.

In view of the above amendments and remarks, Applicant submits that the above-referenced application is in a condition for allowance and respectfully requests a Notice to that effect.

Respectfully submitted,

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